NOVEL MUTATED MAMMALIAN CELLS AND ANIMALS

The present application claims priority to U.S. Provisional Application Number 60/179,110 which was filed January 31, 2000. The present application incorporates U.S. Patent No. 6,080,576 and U.S. Applications Ser. Nos. 08/726,867, 08/728,963, 08/907,598, 08/942,806, 60/109,302, and 09/276,533 and their respective disclosures herein by reference in their entirety.

1.0. FIELD OF THE INVENTION

The present invention is in the field of molecular genetics. The application discloses novel mutated cells that are generated by process involving the insertion of at least a portion of a genetically engineered viral vector into the chromosome. The specifically disclosed recombinant vector allows for the rapid identification of the gene that has been mutated by using nucleotide or amino acid sequence information to identify the gene that has been mutated by the vector. When mutated embryonic stem cell clones are produced, such cells can be used to produce mutant animals capable of germline transmission of the described mutated genes.

2.0. BACKGROUND OF THE INVENTION

Most mammalian genes are divided into exons and introns. Exons are the portions of the gene that are spliced into mRNA and encode the protein product of a gene. In genomic DNA, these coding exons are often divided by noncoding intron sequences. Although RNA polymerase transcribes both intron and exon sequences, the intron sequences must be removed from the transcript so that the resulting mRNA can be translated into protein. Accordingly, all mammalian, and most eukaryotic, cells have the machinery to splice exons to produce mRNA. Gene trap vectors have been designed to insert into the introns of genes in a manner that allows the cellular splicing machinery to splice vector encoded exons to cellular mRNAs. Commonly, gene trap